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10/811,928	03/30/2004	Tomomi Taticishi	1330-0139PUS1	2905
2292	7590	10/17/2007	EXAMINER	
BIRCH STEWART KOLASCH & BIRCH			SUCH, MATTHEW W	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

<b>Office Action Summary</b>	Application No.	Applicant(s)
	10/811,928	TATEISHI, TOMOMI
	Examiner Matthew W. Such	Art Unit 2891

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 30 July 2007.
- 2a) This action is FINAL.                            2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-26 is/are pending in the application.
  - 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-26 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.
 

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All    b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) Notice of Informal Patent Application
- 6) Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 112*

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. In so far as definite, claims 1, 7, 13 and 19 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The phrase "to a temperature 40 degrees Celsius higher than the flow starting temperature" in claims 1, 7 and 13 are not supported by the specification. The specification refers to "the organic layer or high-molecular weight components therein have glass transition temperatures or flow-starting temperatures of higher than 40 degrees Celsius" (Page 22, Lines 18-19) and "the glass-transition temperatures of the organic layer or high-molecular weight components therein are preferably from 40 degrees Celsius to the transfer temperature +40 degrees Celsius" (Page 31, first paragraph). There is nothing in the specification which states that "said organic layer has a glass transition temperature of from 40 degrees Celsius to a temperature 40 degrees Celsius higher than the flow starting temperature". In fact, the specification states that the glass-transition temperature can be 40 degrees Celsius to *the transfer temperature + (plus) 40 degrees Celsius*. The Applicant is invited to point out how

the specification supports the limitation of "the organic layer has a glass transition temperature of from 40 degrees Celsius higher than the flow starting temperature".

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1, 7, 13 and 19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claims require that "the organic layer has a glass transition temperature of from 40 degrees Celsius higher than the flow starting temperature". However, it is unclear whether the flow-starting temperature is intended to be different than the glass transition temperature or if they are the same and it is unclear what the flow-starting temperature is. For the purposes of compact prosecution, the Examiner provisionally interprets the limitation from the specification states that the glass-transition temperature can be 40 degrees Celsius to *the transfer temperature + (plus) 40 degrees Celsius*. Since the specification describes that the transfer temperature can be from 40-250 degrees Celsius (Page 21, Lines 27-28 and Page 22, Line 1), the transfer temperature plus 40 degrees Celsius can be from 80-290 degrees Celsius. Therefore, the glass transition temperature ranges from 40-290 degrees Celsius.

5. Claims 2-3, 8-9, 14-15 and 20-21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claims each recite the limitation "an/the electrode". It is

further unclear whether the electrode of these claims is intended to be the first electrode or whether it is intended to be a unique element. For the purposes of compact prosecution, the Examiner provisionally interprets “the electrode” to be the same electrode as required in the respective parent claim.

6. Claims 25 and 26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claim requires that the “first substrate has a maximum surface roughness Rmax in the range of 0.0001% to 25%”, but does not describe how this percentage is determined. For the purposes of compact prosecution, the Examiner interprets that the phrase is first substrate has a maximum surface roughness Rmax in the range of 0.0001% to 25% obtained from a ratio of a maximum surface roughness Rmax of the first substrate to the thickness of the organic layer.

#### *Claim Rejections - 35 USC § 102*

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. In so far as definite, claims 1-2, 4-8, 10-14, 16-20 and 22-26 are rejected under 35 U.S.C. 102(e) as being anticipated by Tateishi ('763) in view of Zhang (Appl. Phys. Lett.; as supplied with Office Action dated 30 January 2007).

The applied reference has a common assignee and/or inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Tateishi teaches a method and product for producing an organic electroluminescent device by using a transfer material comprising at least one organic layer (Element 112) formed on a support (Element 111). The organic layer is, for example, PVK (Para. 0112-0113), which Zhang teaches has a glass transition temperature of 40 degrees Celsius (Page 2948, Right Column). The transfer material is superposed on a first substrate (Element 101) with an electrode (Element 102) formed thereon forming a laminate. Heat/pressure is applied to that the organic layer is transferred onto the first substrate via the electrode (Para. 0122-0123). The first substrate has a maximum surface roughness Rmax of, for example 10%, based on the ratio of the thickness of the organic layer and the surface roughness of the substrate. The first substrate can be YSZ (yttria-stabilized zirconia), which has a material property of linear thermal expansion coefficient of less than 20 ppm/C. A second substrate, such as a sealing layer, with a second electrode, such as a rear surface electrode are formed on the first substrate (Para. 0152-0156,

0167). A flat layer, such as a UV curing organic compound sealing agent (Para. 0168-0169) can be formed on one of the first and second substrates.

*Claim Rejections - 35 USC § 103.*

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. In so far as definite, claims 1, 7, 13, 19 and 25-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tutt ('039) in view of Nakaya ('176) in view of Tsai (Appl. Phys. Lett.).

Tutt teaches a method of forming an organic electroluminescent device by using a transfer material comprising at least one organic layer, such as TBADN (Para. 0136) formed on a support (Para. 0135), which is a plate having a pattern. The manner in which the claim is written does not limit the pattern of the plate, so any arbitrary shape meets the claim. The transfer material is superposed on a first substrate having an ITO electrode formed thereon, such as clean glass OLED substrate (Para. 0138) such that the organic layer of the transfer material faces the ITO electrode formed on the first substrate (Para. 0138; Fig. 2a, for example). Heat is applied through the application of a laser which forms a laminate (Para. 0141), such that the organic layer is transferred onto the first substrate via the electrode (Para. 0141, for example). The glass transition temperature of TBADN or any organic layer is a material property. Tsai is provided merely to teach that the material property of the glass transition temperature of TBADN is 126

degrees Celsius (Page 243521-3, Left Column, Lines 30-31), which is within the range of 40-290 degrees Celsius. Tutt does not teach that the first substrate has a maximum surface roughness Rmax of 0.0001-25%, based on the ratio of the surface roughness to the thickness of the organic layer.

Nakaya teaches forming substrates with electrodes for OLED devices having a maximum surface roughness Rmax of the first substrate of, for example, 2 nm (Col. 13, Lines 45-46, for example). It would have been obvious to one of ordinary skill in the art at the time the invention was made to produce the first substrate with a maximum surface roughness of 2 nm, for example, since the smooth substrate OLED devices have lower leakage currents and stable emission of light without the presence of dark spots (Nakaya Abstract; Col. 1, Lines 57-65; Col. 15, Lines 1-5, for example). Since Tutt teaches that the organic layer is 20 nm thick (Para. 0136) and Nakaya teaches that the maximum surface roughness Rmax is 2 nm, the ratio is 10%.

11. Claims 2-6, 8-12, 14-18 and 20-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tutt ('039) in view of Nakaya ('176) in view of Tsai (Appl. Phys. Lett.) as applied to claims 1, 7, 13 and 19 above, and further in view of Miyazawa ('937).

a. Regarding claims 2-3, 8-9, 14-15 and 20-21, Tutt teaches a second electrode cathode (Para. 0143) but does not teach a second sealing substrate, nor the surface roughness properties thereof.

Miyazawa teaches a method of forming OLED including a sealing substrate (Element 148) formed on the cathode (Element 154, for example). It would have been

obvious to one of ordinary skill in the art at the time the invention was made to form a sealing substrate as taught by Miyazawa in the methods of Tutt in order to block water and oxygen from reaching degrading the cathode (Miyazawa Para. 0079). Nakaya teaches forming substrates with electrodes for OLED devices having a maximum surface roughness  $R_{max}$  of the first substrate of, for example, 2 nm (Col. 13, Lines 45-46, for example). It would have been obvious to one of ordinary skill in the art at the time the invention was made to produce the second substrate with a maximum surface roughness of 2 nm, for example, since the smooth substrate OLED devices have lower leakage currents and stable emission of light without the presence of dark spots (Nakaya Abstract; Col. 1, Lines 57-65; Col. 15, Lines 1-5, for example).

b. Regarding claims 4, 10, 16 and 22, Tutt teaches that the first substrate is chromium, which has a linear coefficient of thermal expansion of 4.9 ppm/C, since it is a material property.

c. Regarding claims 5-6, 11-12, 17-18 and 23-24, Tutt teaches that a flat layer of thermosetting organic material, such as polyimide (Para. 0135), as a “flat layer”. The Examiner notes that the claims, as written do not limit structural relationship between the “flat layer” and any other element.

12. Claims 3, 9, 15 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tateishi ('763) in view of Zhang (Appl. Phys. Lett.; as supplied with Office Action dated 30 January 2007) as applied to claims 1, 7, 13 and 19 above, and further in view of Nakaya ('176).

Tateishi the surface roughness properties of the sealing substrate.

Miyazawa teaches a method of forming OLED including a sealing substrate (Element 148) formed on the cathode (Element 154, for example). Nakaya teaches forming substrates with electrodes for OLED devices having a maximum surface roughness Rmax of the first substrate of, for example, 2 nm (Col. 13, Lines 45-46, for example). It would have been obvious to one of ordinary skill in the art at the time the invention was made to produce the second substrate with a maximum surface roughness of 2 nm, for example, since the smooth substrate OLED devices have lower leakage currents and stable emission of light without the presence of dark spots (Nakaya Abstract; Col. 1, Lines 57-65; Col. 15, Lines 1-5, for example).

13. Regarding claims 13-24, the language of the claims is directed towards the process of making an organic electroluminescent device. It is well settled that “product by process” limitations in claims drawn to structure are directed to the product, *per se*, no matter how actually made. *In re Hirao*, 190 USPQ 15 at 17 (footnote 3). See also, *In re Brown*, 173 USPQ 685; *In re Luck*, 177 USPQ 523; *In re Fessmann*, 180 USPQ 324; *In re Avery*, 186 USPQ 161; *In re Wethheim*, 191 USPQ 90 (209 USPQ 554 does not deal with this issue); *In re Marosi et al.*, 218 USPQ 289; and particularly *In re Thorpe*, 227 USPQ 964, all of which make it clear that it is the patentability of the final product *per se* which must be determined in a “product by process” claim, and not the patentability of the process, and that an old or obvious product produced by a

new method is not patentable as a product, whether claimed in “product by process” claims or otherwise. The above case law further makes clear that applicant has the burden of showing that the method language necessarily produces a structural difference. As such, the language of claims 13-24 only requires the electroluminescent device. Since the method is taught by the prior art as shown above, the device is necessarily taught.

***Response to Arguments***

14. Applicant's arguments with respect to claims 1-26 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

- i. Blanchet-Fincher ('315) teaches methods of performing conventional donor-transfers of organic electroluminescent layers;
- ii. Kawami ('561) teaches the advantages of forming very smooth substrates and electrode interfaces with organic electroluminescent layers.

16. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew W. Such whose telephone number is (571) 272-8895. The examiner can normally be reached on Monday - Friday 9AM-5PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bradley W. Baumeister can be reached on (571) 272-1722. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Matthew W. Such  
Examiner  
Art Unit 2891



**B. WILLIAM BAUMEISTER**  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800

MWS  
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